

ABSTRACT OF THE DISCLOSURE

Radioactive laundry liquid wastes are supplied in a liquid waste heating vessel. Hydrogen peroxide and an alkali solution are supplied to the liquid waste heating vessel. pH of radioactive laundry liquid wastes is adjusted to 7 or higher by the alkali solution. The radioactive laundry liquid wastes are heated to 50°C or higher by a heating device. The heated radioactive laundry liquid wastes are introduced to first and second aeration vessels. Ozone is supplied from an ozone generator by way of an ozone gas discharge port to the first aeration vessel. Ozone discharged from the first aeration vessel is introduced from the ozone gas discharge port to the second aeration vessel. Therefore, the amount of ozone dissolved into the radioactive laundry liquid wastes is increased so that the amount of hydroxy radicals formed for decomposing organic substances increases, since the laundry liquid wastes are heated to 50°C or higher under the presence of hydrogen peroxide.